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XVII. A Preliminary List of the Butterflies of Hong-Kong; based on Observations and Captures made during the Winter and Spring Months of 1892 and 1893. By JAMES J. WALKER, R.N., F.L.S.

[Read May 1st, 1895.]

ALTHOUGH Hong-Kong has been a British Colony for more than half-a-century, its occupation by England dating from the year 1841, it is not a little remarkable that, while a most admirable Flora of the island was published twenty years later,* scarcely anything appears to be known respecting its insect fauna, of which no general collection, so far as I am aware, has been as yet brought together. The butterflies especially, though sufficiently numerous in species and attractive to the collector, seem to have been almost entirely overlooked by those naturalists to whom we owe our present knowledge of the fauna of south-eastern China. No doubt many collections of these insects have been made by military officers stationed at Hong-Kong, as well as by other European residents; but of these very few, if any, have been made available for scientific treatment by finding their way into the leading museums and collections at home.

Mr. H. J. Elwes, in his important paper, "The Butterflies of Amurland, North China, and Japan" (Proc. Zool. Soc. 1881, pp. 856 *et seq.*), has summed up the state of our knowledge of the *Rhopalocera* of South China at that time. "Our knowledge of the butterflies is infinitesimal. It is extraordinary that out of the great number of Englishmen who for nearly a century have resided at various ports on the coast of China, not one has ever studied Lepidoptera scientifically, and no traveller has ever collected more than a few specimens in any one place, so far as I am aware. Nearly as much was known

[©] Bentham's "Flora Hongkongensis." London : 1861. Supplement by Dr. Hance, 1872.

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by Donovan, ninety years ago, of the insects of South China, as we know now; and there is perhaps hardly another place in the world of equal interest and with half the facilities for travel, which has been so much neglected by naturalists."

Since the above was written, fourteen years ago, the only contribution to our knowledge of the subject, so far as the present writer knows, is a list of 116 species of *Rhopalocera*, with brief notes on their distribution and habits, compiled by himself and Mr. S. B. J. Skertchly, F.G.S. This list was published as an appendix to a little work by Mr. Skertchly on the geology and natural history of Hong-Kong ("Our Island." Hong-Kong: Kelly and Walsh, 1893). Owing to our want of books of reference and other means of identifying the species, this list, which was merely a provisional one intended chiefly for local use, contains several serious errors. The present paper, which has been undertaken at the suggestion of Mr. Elwes, will, I hope, form a useful basis for a more complete knowledge of the Lepidopterous insects of this interesting island.

My experience of collecting in Hong-Kong dates from the middle of December, 1891, when I arrived here from North-west Australia and the Moluccas in H.M. surveying ship, "Penguin." We left on April 4th of the following year for the survey of the Macclesfield Bank in the China Sea, and after a brief visit to Hong-Kong early in May, proceeded to the Chusan Islands. On the 12th December, 1892, the "Penguin" again arrived at Hong-Kong, and I remained here until I left for England in H.M.S. "Tyne," on May 20th, 1893. This is perhaps a fitting place to acknowledge the cordial assistance and encouragement in my natural history pursuits extended to me throughout the entire commission of H.M.S. "Penguin," by my commanding officer, Captain W. U. Moore, R.N., F.R.G.S. Through his kindness I was enabled to utilize to the greatest advantage, such spare time as the duties of the chief engineer of a surveying ship left me to devote to those of a volunteer naturalist, on the many remote and little-known shores visited during the "Penguin's " voyage.

The island of Hong-Kong lies just within the Tropic of Cancer (the position of the capital, Victoria, being in lat. 22° 9' N. and long. 114° 10' E.), and is one of the largest of a group of small rocky islands off the mouth of the Si-Kiang, the great river on which Canton stands. It is about 10¹/₂ miles in extreme length, with a width varying from two to five miles, and embraces an area of a little less than thirty square miles. Generally it may be described as a mass of rugged hills of moderate elevation, separated from each other by deep ravines, and sloping steeply down to a much indented and usually rocky coast-line. Granite, and diorite or greenstone, form the basement rocks of the island, overlaid by more recent but still very ancient beds of quartz-porphyry and other old volcanic rocks, the whole greatly worn down by sub-aerial denudation. The granite is of fairly good quality as a building-stone, but where it is exposed, it is weathered, sometimes to the depth of many feet, by the action of tropical rain and heat, into a soft friable mass, which, while at first sight it appears to retain all the structure and properties of the original rock, may yet be readily dug into with a spade. Such beds of decayed granite are to be seen to great advantage on the west side of the Wong-nei-chong, or "Happy Valley"; and they often contain huge masses of the parent rock, of harder texture than the rest, which have resisted the weathering action, and look deceptively like erratic boulders. Generally speaking, the soil is of a harsh and unkindly nature, and, except in a few places, it is of but little use searching for ground-frequenting Coleoptera; very few insects being found under stones in the cooler months, with the exception of huge wingless cockroaches of three or four species.

Although the island of Hong-Kong has now a population of upwards of 200,000 inhabitants, it is nearly all concentrated in the city of Victoria, which extends for some three miles along the north shore, and about halfa-mile up the slope of the hills, on the summits of which are many fine villa residences and hotels. A few Chinese villages are scattered round the coast, but with these exceptions, the island is almost entirely wild and uncultivated. Some rice used to be grown in the Wongnei-chong valley, but its cultivation was prohibited as unhealthy, and there are now only a few market-gardens near the city, which derives most of its supplies of fruit and vegetables from Canton. The hills, which attain an elevation of 1,500 to 1,700 feet (Victoria Peak, immediately behind the city, being 1,804 feet high), are generally rather bare in aspect, with a clothing of long grass and brushwood towards the summits, and a larger growth of bushes and small trees in the ravines, every one of which has its stream of beautifully clear and pure water. Some parts of the island, especially on the northern slope, appear to be fairly well wooded, as many thousands of trees, chiefly a kind of fir (*Pinus sinensis*), have been planted on the hillsides. Along the roads near the city are many fine trees of a species of fig (*Ficus retusa*) allied to the Indian banyan. The coco-nut palm maintains a precarious existence, and its fruit does not appear to reach maturity, but most of the tropical and sub-tropical fruits succeed very well.

The native flora of Hong-Kong is a very rich and peculiar one, no fewer than 1,072 species of flowering plants and ferns being enumerated by Bentham and Hance in the "Flora Hongkongensis," and of these the large number of 173 were known only from the island at the time of publication. In character it is distinctly tropical, notwithstanding the fact that palms are decidedly rare, and represented by only two or three rather inconspicuous species. Some of the endemic plants are very handsome and remarkable, notably the Gordonia anomala, which expands its large and fragrant white Magnolia-like flowers in every ravine in January and February; and especially the Rhodoleia championi, the pride of the island flora. This is a small tree of the Hamamelideæ, or witch-hazel order, with oval leathery evergreen leaves, which in February bears a profusion of large bell-shaped blossoms of the richest crimson colour. Only two or three specimens of this beautiful tree have as yet been met with in a wild state, but there are some very fine examples in the public gardens and elsewhere. Of naturalized species, the "sensitive plant" (Mimosa pudica) a native of Tropical America, grows abundantly in dry waste places; and another shrub from the same region (Lantana camera), which has now firmly established itself in nearly every tropical country, and whose showy red and yellow blossoms are the greatest attraction to butterflies of all flowers which I know, has taken possession of large spaces near the city, and continues to spread year by year.

Hong-Kong has a distinctly tropical climate, and the

a List of the Butterflies of Hong-Kong.

wet and dry seasons, due to the south-west and northeast monsoons, are here well marked. With an average temperature of about 73° for the whole year, the heat from May to October is very oppressive, though the thermometer rarely rises above 90°; and three-fourths of the total rainfall of the year is precipitated between these months. I had little or no opportunity of collecting in any part of this season, but I am informed that butterflies are not nearly as plentiful as in the earlier months of the year. This is, however, undoubtedly the season for moths, as well as for Coleoptera, especially the Longicornes, Lamellicornes, and other leaf- and wood-feeding groups, which are but poorly represented at other times of the year. With October comes bright, pleasant, and comparatively cool weather, and a fine burst of butterfly life, and this lasts until the middle of January, gradually becoming cooler as Then come the north-east monsoon blows fairly home. six weeks or two months of dull, cheerless, gloomy weather, during which the sun is often obscured for four or five days at a time; there is little actual rain, but frequent drizzle and thick wet mist, and the temperature seldom rises above 60° in the daytime, This is, of course, very poor collecting weather, but on the rare sunny days a good many butterflies may be found on the wing even at this period, and at the beginning of March a considerable number of species, including a large proportion of the Papilionidæ, emerge from the chrysalis. Some heavy showers usually occur about the end of March, and April here is not unlike what it is popularly supposed to be at home-a month of mingled shower and sunshine, but of course a good deal warmer than in England. This is, I think, the most pleasant and remunerative time of the year for the Lepidopterist, as in May the heat renders collecting decidedly hard work, and I noticed a marked falling off, both in number and condition, of the butterflies on the wing during that month.

This sketch of the meteorological conditions of Hong-Kong would not be complete without some mention of the abnormal weather which prevailed in the middle of January, 1893, and the disastrous effects of the frost which then occurred—a frost, I should imagine, without precedent at the sea-level within the tropics—on insect

and vegetable life. After a day of steady cold rain on January 15th, the thermometer on board ship fell to 38° at 8 a.m. on the 16th, and before sunset it was freezing in exposed places at the level of the sea. The hill-tops were all day shrouded in mist, with a piercing north wind and driving rain which froze as it fell, encasing every leaf and twig, and coating the exposed surfaces of walls and rock-faces, with solid and beautifully clear ice to the depth of an inch and more. This icy covering was general at elevations of 400 feet and upwards, and at Victoria Peak the telegraph wires were broken in several places, being unable to support the weight of the icicles which formed upon them, and were sometimes more than a foot in length. On the night of the 17th-18th, water again froze at sea-level, and the lowest air temperature at an elevation of 1500 feet was 25°. The cold wave appeared to have spent its force on the 19th, and by the 21st the temperature was once more normal. On the 22nd I find these remarks in my journal-"Fine, warm, and almost calm. In 'Happy Valley,' for one butterfly that was now on the wing, fifty might have been met with about ten days ago. Euplea superba and lorquinii, Danais genutia and similis, had all but disappeared, solitary examples of each species, in the last stage of decrepitude, being all that were met with; one Terias, one Cupha erymanthis, and one Iraota in fine condition, which I secured, were also noticed. Mycalesis perseus (var. visala) alone, was not very uncommon." On the 24th, my friend Mr. Skertchly and I observed Vanessa canace, Melanitis ismene, Abisara echerius, Lycæna bætica, Zizera maha, and Pieris canidia on the wing, all apparently freshly emerged, but very scarce, only one or two of each species being noticed. For several weeks afterwards, scarcely a butterfly was to be seen even on fine days, and as late as March 17th, only twenty-one species were observed on the wing as against fifty-six species at the corresponding date in 1892. (Of. S. B. J. Skertchly, "Nature," Vol. 48, pp. 3, et seq.). By the middle of April, however, the butterflies were once more as numerous individually as they were at the same time in the previous year, with the exception of three or four species (notably the Euplea's), which had not recovered their usual abundance by the time I

finally left Hong-Kong. The damage done by the frost to the native vegetation was incalculable, several species of plants being entirely killed off, and the aspect of whole districts being altered (Cf. "Nature," Vol. 47, pp. 535, 536). Previous to this unprecedented "cold wave," the lowest temperature recorded at Hong-Kong was 45°, in February, 1885.

By far the most productive locality for butterflies in the island is the Wong-nei-chong, or "Happy Valley," a spot which is familiar to every one who has visited Hong-Kong. This is situated within less than a mile of the city of Victoria, from the centre of which it may be reached in a quarter of an hour by "jinricksha," the universal means of locomotion here. It is the largest piece of level ground in the island, and is an oval and (until drained) somewhat marshy plain, rather more than a mile in circumference, and including within its bounds the racecourse and the principal recreation ground of Hong-Kong. On all sides except the north, where it is open to the harbour, it is shut in by wooded hills, and on its west side are the European cemeteries, the English one in particular being celebrated for the beauty of the gardens attached to it. From these gardens access may be gained to a large extent of well-wooded and productive, but rather steep hillsides; and from the south end of the valley a good road extends for several miles, over a gap in the hills some 700 feet above sea-level, to Cheag-chu, or "Stanley," on the south shore of the island. This sunny valley is the great resort of the butterflies of Hong-Kong, and few indeed are the species which have not at some time or other been taken within its precincts. At Heong-Kong, or "Little Hong-Kong," on the south slope of the island, is a considerable extent of apparently indigenous wood, or rather scrub-land, with many large trees, but it was a little too far from Victoria to be often visited by me, and on the few occasions on which I went there, I found no species which did not occur in the "Happy Valley."

For the purposes of this paper I have included with Hong-Kong the adjoining British territory at Kowloon (Kau-lung), which is situated on the mainland opposite Victoria, at a distance of less than two miles. It is a small rocky granitic peninsula of about a square mile in extent, somewhat similar in character to Hong-Kong, but more arid and of less elevation; it includes some excellent little bits of collecting ground, the best of which, however, was unfortunately destroyed just as I was leaving for England.

Of the 125 species of butterflies hereafter enumerated, 114 have been taken or personally observed by myself, the remainder having been either detected by myself in local collections (of which I have examined several at Hong-Kong), or else existing in the chief collections at home, with the Hong-Kong locality attached. Three species (Amathusia phidippus, Argynnis childreni, and Papilio xuthus) are inserted with much doubt, no specimens of these, so far as I am aware, being extant in any collection from Hong-Kong, though they are all supposed to have been seen by observers who were familiar with the insects. A few obscure Hesperiidæ are still unnamed, and one or two of these may belong to new or undescribed species, but I have not ventured to describe them.

The accompanying table of geographical distribution will serve to show the general relations of the Hong-Kong butterflies with those of the surrounding regions. The essentially tropical character of the entire butterflyfauna of the island, like that of its flora, will be evident from the fact that only three species (Danais chrysippus, Vanessa cardui, and Lycæna bætica), all of very extensive or almost world-wide distribution, are common to Hong-Kong and Europe, while only twenty-seven species, less than one-fourth of the whole number, extend to North China, Japan and the Amur region. The large percentage of species common to Hong-Kong and the Himalayas is very remarkable, but is probably in part due to the extreme richness in tropical forms of the latter region. The number of species common to Hong-Kong and the Philippine Islands, which are separated by at least 450 miles of deep sea, is even greater than those occurring in the not very distant sub-tropical regions of Central and Western China, between which and Hong-Kong are no very formidable physical barriers, though these two regions belong to two different river-So far as I am aware, only three species systems. (Euplœa superba, Clerome eumeus, and Gerydus chinen-sis) appear to be peculiar to Hong-Kong and the adjacent parts of south-east China, while the lastmentioned is, I believe, recorded only from Hong-Kong.

Of the 125 species recorded from Hong-Kong there are-

Common to Hong-Kong, Central and Western China, 52 spp., or 41.6 per cent.

Common to Hong-Kong and the Amur region, North China, and Japan, 27 spp., or 21.6 per cent.

Common to Hong-Kong and Himalayan Region, 93 spp., or 74.4 per cent.

Common to Hong-Kong and Malay Peninsula, 66 spp., or 52.8 per cent.

Common to Hong-Kong and Philippine Islands, 55 spp., or 44.0 per cent.

In drawing up this table of distribution I have used Leech's "Butterflies from China, Japan, and Corea," for the list of those of Central and Western China; and Mr. Elwes's papers, "The Butterflies of Amurland, North China, and Japan" (P. Z. S., 1881, pp. 856, et seq.), and "The Butterflies of Sikkim" (Trans. Ent. Soc., 1888, pp. 269, et seq.); Distant's "Rhopalocera Malayana," and Semper's "Die Schmetterlinge der Philippine Inseln," for the regions of which these works respectively treat.

GEOGRAPHICAL DISTRIBUTION OF HONG-KONG BUTTERFLIES.

Species observed at Hong-Kong.	Central and West China.	Amur, North China,& Japan.	Himalayas.	Malay Penin- sula.	Philippine Is- lands.	Remarks.
Ideopsis daos						
Danais (Caduga) tytia			\$.¥	\$		
" (Tirumala) limniace			*	1	-	
", (Parantica) melanoides			*			
" (Radena) similis				114		
" (Salatura) genutia				*	13	
(Limnas) chrysippus	. 。	0	2	2,5	(3)	
Euplæa (Isamia) superba	• • • • •					
			*	22		
" (Crastia) godarti				*		
" " " frauenfeldi	• …	· · · ·	••••		l	Eastern Asia.

Species observed at Ho	ng-Kon	g.	Central and West China.	Amur, North China, & Japan.	Himalayas.	Malay Penin- sula.	Philippine Is- lands.	Remarks.
Mycalesis perseus					0		•••	
", mineus	•••	•••	0		4	0	0	
Lethe europa	•••	•••	3,6	\$	0	3.4	0	
,, verma	•••	•••	**		-			
Ypthima hübneri	•••	•••			0	*		
,, argus	•••		4	1		••••		
Melanitis ledu	•••	•••	0	0	**	13	**	
" aswa	•••	•••	1	•••	0		••••	
Discophora tullia		••••		•••	4	\$	•••	
Clerome eumeus		•••		••••	•••		•••	
(?) Amathusia phidip		•••	•••			\$	1	
Ergolis ariadne	•••	•••	• • • •		1	<i>.</i>		
Cupha erymanthis	•••		•••			0	-	
Atella phalanta	•••		•••	0	0	8/#	0	
Cethosia biblis	•••	•••	\$		*	0	4	
Apatura parysatis	•••				0		••••	
Hestina assimilis	•••	•••	*	•••	•••	•••		
,, mena, var. nig Junonia asterie		•••	0 0		0		•••	
	•••	•••			0 0	о о	0	
" I ama anai cea		•••	•••	•••	0	0	14 13	
//	•••		•••		57 (2			
anithua	•••	•••	ő			···· 0		
Neptis eurynome	•••		õ				-	
columella	•••							
Cirrhochroa satellita							0	
:41 :7						345 245	•••	
,, milnita Hypolimnas bolina					*		0	
" misippus					**	34	0	
Argynnis niphe			-	-	0		*	
(?) " childreni			**					
Athyma perius					0	0		
,, nefte						¢		
" sulpitia …			**					
" selenophora					-			
Euthalia phemius					0			
Vanessa cardui			0	\$	¢	0	1	
" indica …	•••		-	¢	÷		*	
,, canace	•••		0	4	0	· · · ·		
Symbrenthia hyppoclu	s	•••	0		4	٥	4	
Charaxes athamas	•••				¢	**	*	
" bernardus	•••				0			
Zemeros flegyas	•••		1		0			
Abisara echerius	•••	•••						Indian Region
Curetis acuta	•••		17	0	•••			
Gerydus chinensis	•••	•••						
Neopithecops zalmora	•••	••••]		0]	**	

a	List	of	the	Butterflies	of	Hong-Kong.
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Species observed at Hong-Kong	•	Central and West China.	Amur, North China,& Japan.	Himalayas.	Malay Penin- sula.	Philippine Is- lands.	Remarks.
Zizera sangra		Ö		\$			
" maha		1	0	-		\$	
Lycæna argiades		¢		5.2			
,, bætica		¢	1		1	**	
Chilades laius	•••			0			
Lampides ælianus				<i>.</i> ??	\$	4	
Catachrysops strabo	•••			57	\$	**	
Aphnœus zebrinus	•••	**					
Tojuria longinus	•••	••••		¢	*		
Sithon jangala	•••			*	•••	•••	
Deudorix (Lehera) eryx	•••	••••	•••	**	•••	•••	
,, (Rapala) orseis	•••			**		4	
" epijarbas …	•••			*	4	4	
" (Iraota) timoleon	•••			*	•••	•••	
Deline meethon mæcenas	•••		•••	*			
Delias pasithoë	•••		••••	<i>ي</i> ب		<i>\$</i>	
,, hierte Prioneris clemanthe	•••		. •••	*	••••		
a	•••	•••		*	¢ ¢	•••	
	••••		••••	**	5.F	w Ø	
" amogala	•••	۰۰۰ بال		ö		*	
Thening headha	•••	* *		ő	24	*	
mandanina		2	ä			•••	
Inta		*	**	\$			
horigitta vor liberthea							Canara.
Pieris (Ganoris) canidia		\$	0	\$		*	Callara.
" (Huphina) nerissa				**			[Bombay.
", ", pallida							Poona and
", ", aspasia						*	
Tachyris (Appias) albina						4	
Ixias pyrene				*			
Hebomoia glaucippe				́ф	÷	315	
Papilio aristolochiæ		1		-	¢	**	
,, paris				**			
" bianor	•••	٢	*				
,, agenor	•••	\$	4	<i>*</i>	\$		
" protenor	•••	ŵ		1			
" helenus	•••	4	*	**	1	*	
,, polytes	•••	ŵ		**	¢	4	
" erithonius …	•••			0	0	0	
" clytia	•••			*	1	*	
" antiphates	•••		•••	*	**	*	
" sarpedon …	•••	\$	1	\$2 	*	1	
,, eurypilus	•••			*	•••	•••	
" agamemnon …	•••	•••	*	*	\$	**	
" xuthus	•••	27	*	***	••••	•••	
Leptocircus curius	•••		1	0			r

Species observed at Hong-Kong.				Amur, North China,& Japan.	Himalayas.	Malay Penin- sula.	Philippine Is- lančs.	Remarks.
Ismene ataphus					0			Sylhet.
Hasora vitta	•••					0	0	
Matapa aria					0	1	0	
Notocrypta alysos					¢	0	0	
Baoris oceia			0		0	0	13	States and the second se
" narooa …	•••						- 23	
,, assamensis								Assam.
Chapra mathias			0	0	0	1	0	
Parnara guttatus			43	0	¢		0	
Suastus gremius			•••		0			
Telicota bambusæ	•••		0		17	0	-	
,, mæsoides					0	0		[Andaman Is,
Halpe moorei								India, Burma,
Tagiades atticus		,			0	13		and a second second
Antigonus sura	•••				0	0		
Erionota thrax				1	\$	0	0	and the second se
Hyarotis adrastus					0	0	13	3.
Udaspes folus	•••				¢	0		
Asticopterus olivasce	ns		0					1000
, (Jambry		ala			0	0		and a

1. Ideopsis daos.

Idea daos, Boisdv., Sp. Gén. Lép. i., t. 24, fig. 3 (1836).

This species is inserted on the authority of specimens in the National Collection, which are labelled with the locality "Hong-Kong." I have, however, not met with it myself, nor have I seen it in any of the local collections which I have examined. It may possibly exist in some of the more densely wooded ravines in the island. In this connection, I may mention that I have seen a specimen of the conspicuous Malayan and Bornean butterfly, *Hestia lynceus*, Drury, which was taken more than twenty years ago on the wharf at Kowloon—an obvious importation.

2. Danais (Caduga) tytia.

Danais tytia, Gray, Lep., Ins. Nepal, p. 9, t. 9, fig. 2 (1846); Doubl. & Hew., Gen. Diurn. Lep., t. 12, fig. 4 (1847).

D. (Caduga) loochooana, Moore, P. Z.S., 1882, p. 250.

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Not common; occurs sparingly in the gardens at "Happy Valley," and in the adjoining wooded country. It has a rather lofty sailing flight, stronger than that of most of its family. My specimens appear to agree very well with the form described by Mr. F. Moore as *Caduga loochooana*, under which name they are placed in the National Collection. First observed, 11th February, 1892.

3. Danais (Tirumala) limniace.

Papilio limniace, Cram., Pap. Exot., i., t. 59, figg. D. E. (1779).

Common, especially in "Happy Valley," and very partial to the flowers of *Lantana camera*. It is found, in good condition, from December to May, and is probably on the wing throughout the year.

4. Danais (Parantica) melanoides.

Parantica melanoides, Moore, P. Z. S., 1883, p. 247.

A rather scarce species, found by me only in the "Happy Valley" gardens, flying close to the ground in shady paths. January to April.

5. Danais (Radena) similis.

Papilio similis, Linn., Mus. Ulr., p. 299 (1764); Syst. Nat., i., 2, p. 782, n. 193 (1767).

The commonest of the green species of *Danais*, being found everywhere in shady places. On the wing from December to May, and probably all the year.

6. Danais (Salatura) genutia.

Papilio genutia, Cram., Pap. Exot., iii., t. 206, figg. C. D. (1782).

Danais plexippus, auct. (nec Linn.).

Also a very common insect, flying in gardens and along the roadsides. It is found most numerously in December, and is very partial to the flowers of *Poinsettia*, the splendid scarlet bracts of which are attractive to so many insects.

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7. Danais (Limnas) chrysippus.

Papilio chrysippus, Linn., Mus. Ulr., p. 263 (1764).

A common butterfly of the open country, although somewhat local, and perhaps most plentiful at Shek-py-Wan, or "Aberdeen," on the south shore of the island, where I have found the larva feeding on the naturalized American weed, Asclepias curassavica, Linn., which grows abundantly in waste places in Hong-Kong. This plant now appears to be spread throughout the Moluccas and the Philippine Islands, but its special butterfly, Anosia plexippus, Linn. (Danais archippus, F.), was not found by me farther from its original home than the Island of Ternate.

8. Euplœa (Isamia) superba.

Papilio superba, Herbst, Naturs. Schmett., v., tt. 119, 120 (1792).

One of the commonest and most beautiful butterflies in the island, occurring everywhere in wooded situations. I have several times seen it flying in hundreds round the tops of the flowering trees, late in the afternoon. In the gardens at "Happy Valley," its favourite flower is the *Poinsettia*. The larva feeds on *Strophanthus divergens*, a woody climber of the natural order *Apocyneæ*, and has also been found on the imported Oleander ; the brilliantly gilded pupa is suspended among the leaves of the foodplant. Abundant in December, 1891, and on to the following March, when a fresh brood was on the wing. In 1893, after the frost of January 16th and 17th, it disappeared entirely until May 13th, when a few fresh specimens were observed.

9. Eupleea (Terpsichrois) midamus.

Papilio midamus, Linn. (pars), Mus. Ulr., p. 251 (1764); Syst. Nat., i., 2, p. 765, n. 108 (1767).

This species occurs with the preceding, and its habits are similar, but it is much less common. December to May.

10. Eupleea (Crastia) godarti.

Euplæa godartii, Luc., Rev. Zool., 1853, p. 319. E. siamensis, Feld., Reise Nov., Lep., ii., p. 341, n. 473, t. 41, fig. 6 (1867).

Apparently very scarce, only one or two specimens having been taken by me in the "Happy Valley," at flowers of *Poinsettia*, in February, 1892.

11. Euplæa (Crastia) frauenfeldi.

Euplæa frauenfeldii, Feld., Verh. zool.-bot. Ges. Wien, xii., p. 479, n. 87 (1862); Reise Nov., Lep. ii., p. 342, n. 474, t. 41, fig. 4 (1867).

Var. a. lorquinii, Feld., Reise Nov., Lep., ii., p. 340, n. 472 (1867).

A very common species at "Happy Valley" and elsewhere, its flight and habits being similar to those of *E. superba* and *midamus*, in company with which it is found. It has been bred from larvæ found feeding on *Strophanthus divergens*. The Hong-Kong specimens agree exactly with the var. *lorquinii* of Felder. December to May, but very scarce in the spring of 1893.

12. Mycalesis perseus.

Papilio perseus, Fabr., Syst. Ent., p. 488, n. 199 (1775).

Not very uncommon in shady places among bushes; sporadically from December to May.

13. Mycalesis mineus.

Papilio mineus, Linn., Syst. Nat., i., 2, p. 768, n. 126 (1767).

Mycalesis visala, Moore, Cat. Lep. E. I. C., i., p. 260 (1877) (forma hyem.).

Much more plentiful than the preceding, and of similar habits. The winter form, which has the underside of the hindwings plain and without ocelli, agrees with the insect described by Moore as M. visata. This was almost the only butterfly which was not greatly reduced in numbers after the frost of January, 1893. I find some

of my Hong-Kong specimens of this insect in the National Collection, placed under M. drusia, Cram., which was originally described from China, and is probably only a race of M. mineus.

14. Lethe europa.

Papilio europa, Fabr., Syst. Ent., p. 500, n. 247 (1775).

Moderately common in bushy places, in "Happy Valley," at Kowloon, and elsewhere. It has a wild and rather strong flight, and, contrary to the general habits of the *Sutyridæ*, it often settles on the leaves and twigs of trees for a few feet above the ground. A light fawn-coloured variety of the δ occurs rarely. First taken by me 25th March, 1892; more common in May.

15. Lethe verma.

Satyrus verma, Koll., Hügel's Kashmir, iv., 2, p. 447, t. 16, fig. 12 (1848).

Of this pretty little species I have met with but one specimen, at the exuding sap of a small tree in the "Happy Valley," on the 17th March, 1892, and have seen one or two others in local collections.

16. Ypthima hübneri.

Ypthima hübneri, Kirby, Cat. Diurn. Lep., p. 95 (1871). Papilio philomela, Hübn. (nec Linn.), Zutr. Ex. Schmett., figs. 83, 84 (1818).

Not rare, among long grass on the hillsides, as well as in gardens and woody places. It may be found from December to May.

17. Ypthima argus.

Ypthima argus, Butl., Journ. Linn. Soc., Zool. ix., p. 56, n. 22 (1866).

Much less common than the preceding species; I have found it rarely in "Happy Valley," in February and March.

18. Melanitis leda.

Papilio leda, Linn., Syst. Nat., i., 2, p. 773 (1767) (forma æst.).
Pap. ismene, Cram., Pap. Exot., i., t. xxvi., figg. A. B. (1775) (forma hyem.).

A common butterfly in Hong-Kong, frequenting dark, shady places and settling on the ground among dead leaves, where its sombre colours effectually conceal it; towards evening it comes out and flies wildly about in the open and along roadsides. Extremely variable in size and markings; the specimens from a valley about a mile and a half east of Victoria, where the soil is strongly charged with oxide of iron, are remarkable for the rich reddish-ochreous tint of the underside of the wings. All the winter specimens which I have seen are of the form *ismene*, Cramer; the typical form *leda*, Linn., with wellmarked ocelli on the underside, appearing with the rains in April and May.

19. Melanitis aswa.

Papilio leda, Linn., Syst. Nat., i., 2, p. 773 (1767).
Var. a. Cyllo tristis, Feld., Reise Nov., Lep., iii., p. 464, n. 785 (1867).
Cyllo aswa, Moore, P. Z. S., 1865, p. 769.

I have seen only one example of this well-marked form, taken at Kowloon by Mr. S. B. J. Skertchly late in 1891.

20. Discophora tullia.

Papilio tullia, Cram., Pap. Exot., i., t. 81, figg. A. B. (1779).

Not very common; usually seen flying along roadsides at dusk, and disturbed from shady places during the day. The \Im appears to be more common than the \Im . First taken 31st December, 1891, and sporadically up to May.

21. Clerome eumeus.

Papilio eumeus, Drury, Ill. Exot. Ent., i., t. 2, fig. 3 (1773) Pap. eumea, Cram., Pap. Exot., ii., t. 183, figg. C. D.

(1779).

This plainly but richly-coloured butterfly, which appears to be confined to a very small district in south-eastern China, is one of the most abundant and characteristic insects of Hong-Kong, and it is strange that it should have been a rarity, even in the best collections, for so long a time. It was almost the first butterfly which I saw on my arrival in December, 1891, and worn specimens were to be met with throughout the following months, a fresh brood appearing on March 12th. Even on dull cool days it may be seen on the wing, flying close to the ground in shady places with a slow, irregular, flapping flight, and frequently settling among dead leaves and in damp spots; stragglers are not rarely seen in the streets of the city. It is not always easy to obtain in good condition, as its delicate structure renders it very liable to damage. I have not been able to find the larva, but it probably feeds on grass or dwarf bamboo, as in March, 1892, I found an empty pupa in a small patch of the latter plant, just vacated by the perfect insect, which was drying its wings close by. The pupa is nearly smooth and without projections, except two small diverging horns in front of the head, and is pale whitish-green in colour.

22. (? Amathusia phidippus).

Papilio phidippus, Linn., Syst. Nat., i., 2, p. 752, n. 34 (1757).

Of very doubtful occurrence in Hong-Kong; Mr. Skertchly, who is perfectly familiar with the insect in British North Borneo and elsewhere, saw what he imagined to be *Amathusia phidippus* near the Cathedral in Victoria, in December, 1892. The coco-nut palm, on the young leaves of which the larva feeds (*fide* Dr. Horsfield), is planted in a few places near Victoria and at Kowloon, but does not flourish.

23. Ergolis ariadne.

Papilio ariadne, Linn., Syst. Nat., i., 2, p. 778 (1767).

Not very common; flies quietly along sunny roadsides, and settles with expanded wings on foliage. December to May.

24. Cupha erymanthis.

Papilio erymanthis, Drury, Ill. Exot. Ent., i., t. iv., figg. 3, 4 (1770).

A common and generally distributed butterfly, of which specimens, usually in more or less worn condition, may be found from December to March, when a brood of larger and darker examples makes its appearance. The green spiny Vanessa-like larva is often found on Glochidion eriocarpum, Champ., a common roadside shrub with downy leaves, and the pupa, which is very angular and most brilliantly gilded, is attached to the twigs of the same plant. Both are, however, so frequently infested with Ichneumons and Dipterous parasites that I never succeeded in rearing the butterfly, though other local collectors were more fortunate.

25. Atella phalanta.

Papilio phalanta, Drury, Ill. Exot. Ent., i., t. 21, figg. 1, 2 (1770).

Rare; occasionally taken at flowers of *Lantana camera*, in February and March.

26. Cethosia biblis.

Papilio biblis, Drury, Ill. Exot. Ent., i., t. 4, fig. 2 (1770).

Var. f. Cethosia eurymena, Feld., Reise Nov., Lep., iii., p. 384, n. 356 (1867).

A scarce insect at Hong-Kong, occurring in gardens in March and April. It is reported to be common at Wag-lan, a little rocky island some twenty miles to the south-eastward, where the larva is said to feed on a naturalized American plant, *Passiflora fætida*. The Hong-Kong specimens agree well with the form *eurymena*, Feld., described from the Philippine Islands.

27. Apatura parysatis.

Apatura parysatis, Westw., Gen. Diurn. Lep., ii., p. 305 (1850).

Not uncommon in the "Happy Valley," in March, April, and May, the almost black \mathcal{S} delighting to sun itself with expanded wings on the outer leaves of low trees, the paler-coloured $\overset{\circ}{\varphi}$ being more partial to shady places.

28. Hestina assimilis.

Papilio assimilis, Linn, Mus. Ulr. p. 300 (1764); Syst. Nat., i., 2, p. 782, n. 194 (1767).

This very handsome butterfly occurs rather sparingly in the "Happy Valley" and near Kowloon, in April and May, and sometimes earlier; I took my first specimen on April 2nd, 1892. In the Chusan Islands, where it is common, it frequents the tops of the hills at an elevation of 1200 to 1500 feet, and settles on the bare hot rocks with wings fully extended. Although a strong flyer it is not shy, and is caught without much difficulty.

29. Hestina mena.

Hestina mena, Moore, Ann. and Mag. Nat. Hist. (3) i., p. 48 (1858).

 Var. nigrivena, Leech, Entom., xxiii., p. 31 (1890);
 Grose Smith & Kirby, Rhop. Exot. i., pt. xvi. (*Hestina*) p. 1, pl. i., figg. 1, 2 (1891).

Not very common in Hong-Kong, but rather more plentiful at Kowloon, where Mr. Skertchly found it in beautiful condition at the end of April, 1893; my first specimen was taken May 7th, 1892. A specimen was bred by Surgeon-Captain W. W. Beveridge, from a smooth green slug-like larva with two branched horns on the head (not very unlike that of *Apatura iris*), which changed to a very stout green pupa. The flight of this butterfly is graceful and floating, usually rather high, but I have more than once seen it settle abruptly on the ground in the middle of a road.

30. Junonia asterie.

Papilio asterie, Linn., Syst. Nat. ed. x., p. 472 (1758) (forma æst.).
Pap. almana, Linn., l. c.; Mus. Ulr., p. 272 (1764) (forma hyem.).

Common among long grass, especially in somewhat damp open places, but also found at the flowers of Lantana camera. The specimens taken in December, January, and February, are nearly all of the form described by Linnæus as P. almana, in which the underside is dark russet-brown, with the ocellated spots absent, or only faintly indicated, and with a pale line from the apex of forewings to the lower angle of hindwings, the whole forming an excellent imitation of a withered leaf, almost as striking as the more celebrated Kallima. Occasionally, however, examples occur in these months with the ocelli of the underside more or less developed, approaching in this character to the wet-season form asterie, Linn., which appears at the end of April and in May. The seasonal forms of this species and of Melanitis leda, at Hong-Kong, are fully treated of in an interesting paper read before the South London Entomological Society by the late J. Jenner Weir, F.L.S. (Abstract of Proceedings South Lond. Ent. Soc. 1892-93, pp. 65, et seq.) I found Junonia asterie (form almana) commonly at Hang-chau, Haining, and Shanghai, in October, 1892, the specimens being much larger and finer than those from Hong-Kong and other tropical countries.

31. Junonia atlites.

Papilio atlites, Linn., Cent. Ins., p. 24 (1763) (fide Aurivillius).

Pap. laomedia, Linn., Syst. Nat., i., 2, p. 772 (1767) (et auctorum).

This common Eastern butterfly is of somewhat doubtful occurrence at Hong-Kong. I have not met with it myself, but have seen one or two specimens in local collections, said to have been taken here.

32. Junonia lemonias.

Papilio lemonias, Linn., Syst. Nat., ed. x., p. 473 (1758).

Not very common; usually found on roadsides, and in dry sunny places. December to May.

33. Junonia œnone.

Papilio cenone, Linn., Mus. Ulr., pp. 274 and 275 (1764), et auctorum.

Var. a. Pap. hierte, Fabr., Ent. Syst., Suppl., p.424 (1768).

Fairly common in "Happy Valley" and at Kowloon; frequents open dry places. April and May.

34. Junonia orithya.

Papilio orithya, Linn., Mus. Ulr., p. 278 (1764).

Common in dry open places, occurring on the tops of the hills, as well as in the "Happy Valley" and at Kowloon. The form found at Hong-Kong is a very handsome one and has the ocellated spots on the hindwings sometimes very largely developed. December to May, and probably all the year.

35. Neptis eurynome.

Limenitis eurynome, Westw., Don. Ins. China (ed. 2) p. 66, pl. 35, fig. 4 (1842).

Neptis sangaica, Moore, Ann. and Mag. Nat. Hist., 4, xx., p. 47 (1877).

A very common but pretty insect, which flies quietly along sunny roads and pathways, and is easily taken. My Hong-Kong specimens are apparently of the form described by Moore as N. sangaica, under which name they stand in the National Collection. On the wing from December to May, and found most plentifully in March and April.

36. Neptis columella.

Papilio columella, Cram., Pap. Exot., iv., t. 298, figg. A. B. (1782).

This large and handscme *Neptis* occurs sparingly in the gardens at "Happy Valley" in April and May, my first specimen having been taken on March 26th, 1893.

37. Cirrhochroa satellita.

Cirrhochroa satellita, Butler, Cist. Ent., i., p. 9 (1869).

I know of only one specimen of this species from Hong-Kong, which is in the collection of Messrs. Godman and Salvin.

38. Cirrhochroa mithila.

Cirrhochroa mithila, Moore, P. Z. S., 1872, p. 558. C. rotundata, Butl., Trans. Linn. Soc. (2), Zool. i., p. 543 (1877).

Also very rare, and not met with by myself, but I have seen one or two specimens in the small collection of butterflies in the City Hall Museum and other local collections.

39. Hypolimnas bolina.

Papilio bolina, Linn., Syst. Nat., ed. x., p. 479 (1758).

Not common; occurs in the "Happy Valley" gardens and elsewhere, in April and May.

40. Hypolimnas misippus.

Papilio misippus, Linn., Mus. Ulr., p. 264 (1764).

I have seen only one specimen, a δ , of this widely distributed butterfly, which was flying about and settling on a bare hill-top close to Kowloon, on February 12th, 1892.

41. Argynnis niphe.

Papilio niphe, Linn., Syst. Nat., i., 2, p. 785 (1767).

Tolerably common; frequents the summits of the hills, and is also met with in the gardens at "Happy Valley." First seen 12th March, 1892. The Hong-Kong specimens are very large and fine, and the φ bears a striking resemblance to *Cethosia biblis*, as well as to *Danais chrysippus*, when on the wing.

42. (? Argynnis childreni.)

Argynnis childreni, Gray, Zool. Misc., p. 33 (1831); Lep. Ins. Nepal, p. 11, t. 11, J (1846).

Dr. P. W. Bassett-Smith, R.N., my fellow-worker in Natural History on board H.M.S. "Penguin," observed in March, 1893, a large "Fritillary" on the summit of Tai-mo-shan, a mountain 3,200 feet high lying just outside the British territory at Kowloon. This he believed at the time to be *A. childreni*, a species which we had taken together in the Chusan Islands. Although this is but a doubtful record, I mention it in the hope that this fine insect may yet be found, or at any rate looked out for, in the "Peak" district of Hong-Kong, or in other parts of South China.

43. Athyma perius.

Papilo perius, Linn., Syst. Nat., ed. x., p. 471 (1758). Pap. leucothoë, l. c., p. 478 (et auctorum).

On my arrival at Hong-Kong in December, 1891, I found this butterfly very plentiful, but already getting worn, and it remained on the wing only three or four weeks. It reappeared in the following March, but was not nearly as common as before. It frequents sunny roadsides and has a strong and graceful flight.

44. Athyma nefte.

Papilio nefte, Cram., Pap. Exot., iii., t. 256, figg. E. F. (1782).

Not uncommon in the "Happy Valley" and elsewhere, and met with from December to May, a fresh brood appearing at the end of March. It is very partial to the flowers of *Poinsettia*.

45. Athyma sulpitia.

Papilio sulpitia, Cram., Pap. Exot., iii., t. 214, figg. E. F. (1782).

Occasionally found at *Lantana* flowers, and flying along shady pathways, but not very common. March and April.

46. Athyma selenophora.

Limenitis selenophora, Koll., Hügel's Kashmir, iv., 2, p. 426, t. vii., figg. 1, 2 (1848).

Occurs occasionally in the "Happy Valley" gardens in April and May. One of the most graceful insects on the wing that I have ever seen.

47. Euthalia phemius.

Itanus phemius, Doubl. & Hew., Gen. Diurn. Lep., ii., t. 41, fig. 4 (1850).

Adolias phemius, Moore, Trans. Ent. Soc., ser. ii., v., p. 65, t. iii., fig. 3 (1859).

q. A. sancara, Moore, Cat. Lep. E. I. C., i., p. 186, n. 374 (1857).

Moderately common, worn specimens occurring in December and January, and a fresh brood appears early in April. The d, as its compact and powerful build would indicate, is a tremendously rapid flyer, but its boldness renders it a very easy prey to the collector when it settles on a leaf within reach, with its wings fully extended. The q (Adolias sancara, Moore) is much less common than the other sex, and frequents shady places, while the \mathcal{J} is fond of open sunny paths in the "Happy Valley." Having met with the two forms in cop. I have no doubt as to the specific identity of A. sancara with E. phemius. (Cf. Elwes, Cat. Lep. Sikkim, Trans. Ent. Soc., 1889, p. 359.) I once bred a & specimen from a large and very stout green chrysalis, richly spotted with gold, which I found attached to a twig under some "Litchi" trees (Nephelium litchi), much frequented by the perfect insect.

48. Vanessa cardui.

Papilio cardui, Linn., Syst. Nat., ed. x., p. 475 (1758).

Not very common in Hong-Kong, and usually seen on the hill-tops, but also found at lower levels. As is usually the case with those I have met with in tropical localities, the specimens occurring here are small and pale in colour, in comparison with examples from temperate regions. December to May; probably all the year.

49. Vanessa indica.

Papilio indica, Herbst (Pap. Atalanta, L.), Naturs. Schmett., vii., t. 180, figg. 1, 2 (1794).

Also somewhat scarce, and found under the same circumstances as the preceding. December to May. Much more common in the Chusan Islands in summer.

50. Vanessa canace.

Papilio canace, Linn., Syst. Nat., i., 2, p. 779 (1767).

Pap. charonia, Drury, Ill. Exot. Ent., i., t. 15, figg. 1, 2 (1773).

Common, frequenting sunny roads and settling on hot stones and tree-trunks; a very shy insect, of powerful and rapid flight. I have found the larva feeding gregariously on a species of *Smilax* in December. On the wing during the whole of my stay in Hong-Kong.

51. Symbrenthia hyppoclus.

Papilio hyppoclus, Cram., Pap. Exot., iii., t. 220, figg. C. D. (1782).

A common and very pretty insect, usually found flitting rapidly, like a small *Vanessa*, along sunny roadsides and in gardens, and settling on leaves and twigs with wings fully expanded, generally about ten feet from the ground. December to May; fresh specimens on the wing in February.

52. Charaxes athamas.

Papilio athamas, Drury, Ill. Exot. Ent., i., p. 5, t. 2, fig. 4 (1770).

I have only once seen this butterfly (at close quarters, so that I am satisfied as to the correct identification of the species) in wooded ground about half-a-mile east of "Happy Valley," 2nd April, 1893.

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53. Charaxes bernardus.

Papilio bernardus, Fabr., Ent. Syst., iii., i., p. 71, n. 223 (1793); Don., Ins. China, t. 35 (1798).

This fine insect is rather scarce, but is represented in every local collection that I have examined. I have only taken it myself on two occasions—a \mathcal{S} on May 9th, 1892, and a very fine \mathfrak{Q} on May 6th, 1893, both in "Happy Valley" gardens. The \mathfrak{Q} was taken at sap exuding from the trunk of a small oak tree. I am indebted to Mr. F. Moore for the indentification of the species.

54. Zemeros flegyas.

Papilio flegyas, Cram., Pap. Exot., iii., t. 280, figg. E. F. (1782).

Very common, especially in April and May, but stray specimens occur throughout the winter months. It frequents sunny paths and roadsides, and has a rapid flight, settling abruptly on leaves with wings extended and slightly raised.

55. Abisara echerius.

Papilio echerius, Stoll, Suppl. Cram., t. 31, figg. 1, 1A, B (1790).

One of the commonest of the Hong-Kong butterflies, and it was to be taken in good condition during the whole period of my stay, except for some four or five weeks after the frost of January, 1893, when it disappeared almost entirely. It is found in the same situations, and has much the same habits, as the preceding species.

56. Curetis acuta.

Curetis acuta, Moore, Ann. & Mag. Nat. Hist. (4) xx., p. 60.

I have only twice met with this insect in the gardens at "Happy Valley," on January 2nd and December 23rd, 1892. I also found it in the Chusan Islands in August, and at Da-laen-saen, in the mountain region behind

Ning-po (near the celebrated "Snowy Valley"), in November of the same year. The contrast of colour between the upper and lower surfaces of the wings gives this butterfly a most curious appearance on the wing.

57. Gerydus chinensis.

Miletus chinensis, Feld., Verh. zool.-bot. Ges. Wien, xii., p. 488, n. 146 (1862); Reise Nov., Lep., ii., p. 284, n. 364, t. 35, figg. 35, 36 (1865).

I have seen only one specimen of this singular little butterfly, described by Felder, from Hong-Kong; this I took on a Verbena flower in "Happy Valley" gardens, on March 30th, 1892.

58. Neopithecops zalmora.

Pithecops zalmora, Butler, Cat. Fabr. Lep., p. 16(1870).

One of the most local of the Hong-Kong butterflies, although it is not uncommon where found. I only met with it along a few yards of the "Stanley Road," at the head of the "Happy Valley," and in one or two very restricted spots at Kowloon. It flies in rather dark shady places under trees, and although small, is conspicuous on the wing by its white underside. December, and again from March to May.

59. Zizera sangra.

Polyommatus sangra, Moore, P. Z. S., 1865, p. 772, t. 41, 8.

Not uncommon among Mimosa pudica and other lowgrowing Leguminosæ, in open ground in the "Happy Valley," and elsewhere. December to May.

60. Zizera maha.

? Lycæna otis, Fabr., Mant. Ins., ii., p. 73.
 L. maha, Koll., Hügel's Kashmir, iii., 2, p. 422 (1848).
 L. argia, Mén., Cat. Mus. Petr., p. 125, t. 10, fig. 7 (1857).

A very common insect, found everywhere in the open country and along the roadsides. December to May, and probably throughout the year.

61. Lycæna argiades.

Papilio argiades, Pall., Reise, i., App. No. 65 (1771).
? Lycæna praxiteles, Feld., Verh. zool.-bot. Ges. Wien, xii., p. 489, n. 51 (1862); Reise Nov., Lep., ii., p. 281, n. 355, t. 35, fig. 5 (1865).

I have seen only a very few local examples of this species, which were taken by Dr. W. W. Beveridge in a grassy place on the south slope of the island. These agree well with specimens from the Chusan Islands, where the insect is very common.

62. Lycæna bætica.

Papilio bæticus, Linn., Syst. Nat., i., 2, p. 789, n. 226 (1767).

Common, especially in the low ground about "Happy Valley," where it may sometimes be met with in numbers, flying about the flowers of a species of *Cassia*. December to May, and apparently on the wing all the year round.

63. Chilades laius.

Papilio laius, Cram., Pap. Exot., iv., t. 319, figg. D. E. (1782).

Polyommatus varunana, Moore, P. Z. S., 1865, p. 772, t. 41, fig. 6.

Apparently not a rare species, but it seems to be more common at Kowloon than at Hong-Kong. I have taken specimens during every month of my stay. It frequents sunny, bushy places.

64. Lampides œlianus.

Hesperia œlianus, Fabr., Ent. Syst., iii., p. 280 (1798).

Rare; I have seen only one or two specimens in Dr. Beveridge's collection, which were taken in the "Happy Valley."

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65. Catachrysops strabo.

Hesperia strabo, Fabr., Ent. Syst., iii., p. 287 (1793).

Not common; chiefly met with in the "Happy Valley" gardens, in April and May. It has the habits of a *Thecla*.

66. Aphnæus zebrinus.

Aphnæus zebrinus, Moore, Journ. As. Soc. Beng., liii., 2, p. 28 (1884).

This pretty little insect exists in more than one local collection, but I only once met with it myself, in the "Happy Valley," in April, 1893, when I saw a specimen settled on a leaf just out of reach of my net. I obtained specimens of the species in the Chusan Islands, in August, 1892.

67. Tajuria longinus.

Hesperia longinus, Fabr., Ent. Syst., Suppl., p. 430 (1798).

Scarce; a few specimens taken in the "Happy Valley" gardens, April and May, 1893.

68. Sithon jangala.

Amblypodia jangala, Horsf., Cat. Lep. E.I.C., p. 113, n. 44 (1829); Moore, Cat. Lep. E.I.C., t. 1a, fig. ii. (1857).

I took a few specimens of this handsome insect on *Poinsettia* flowers in December, 1891, and January, 1892, but did not see it at all in 1893.

69. Deudorix (Lehera) eryx.

Papilio eryx, Linn., Mant. Plant., p. 537 (1771).

Somewhat scarce, occurring chiefly in the "Happy Valley" gardens, and first taken March 25th, 1892. Its bright green underside, when quite fresh, makes it very conspicuous on the wing.

70. Deudorix (Rapala) orseis.

Deudorix orseis, Hew., Ill. Lyc., p. 23 (1863). ? D. grisea, Moore, P.Z.S., 1879, p. 140.

A common insect in gardens, etc., its habits as well as its appearance, reminding one of our familiar Zephyrus quercus. December to May.

71. Deudorix epijarbas.

Dipsas epijarbas, Moore, Cat. Lep. E.I.C., p. 32 (1857).

I have not myself taken this species at Hong-Kong, but have seen it on more than one occasion flying round the tops of low trees in the "Happy Valley," and have examined several specimens in local collections.

72. Deudorix (Iraota) timoleon.

Papilio timoleon, Stoll, Suppl. Cram., t. 32, fig. 4 (1790).

Not uncommon in gardens, etc., and on the wing during the whole of my stay at Hong-Kong. It is very partial to the flowers of *Poinsettia*.

73. Deudorix (Iraota) mæcenas.

Hesperia mæcenas, Fabr., Ent. Syst., iii., 1, p. 271, n. 45 (1793); Don., Ins. China, t. 39, fig. 2 (1798).

The remarks on the preceding species apply also to this, but it is much less common.

74. Delias pasithoë.

Papilio pasithoë, Linn., Syst. Nat., i., 2, p. 755 (1767).

Rather scarce, and usually observed high up among the branches of the *Ficus retusa* trees planted along the roadsides. A beautiful specimen was caught on board H.M.S. "Penguin," in the harbour, on January 6th, 1893; also observed in April and May.

75. Delias hierte.

Delias hierte, Hübn., Zutr. Ex. Schmett., figg. 77, 78 (1818).

Seen once or twice, but not caught by me, in April and May, 1893; one or two examples taken by local collectors have enabled me to identify the species.

76. Prioneris clemanthe.

Pieris clemanthe, Doubl., Ann. Nat. Hist., xvii., p. 23 (1846).

I have met with only one example of this butterfly, a somewhat worn \mathfrak{P} , settling on a damp path in the "Happy Valley" gardens, May 10th, 1893.

77. Catopsilia chryseis.

Papilio chryseis, Dru., Ill. Exot. Ent., i., t. 12, figg. 3, 4 (1773).

The commonest species of its genus at Hong-Kong, and usually taken at the blossoms of the *Lantana*. Fresh specimens observed, February 2nd, 1892.

78. Catopsilia catilla.

Papilio catilla, Cram., Pap. Exot., i., t. 55, figg. C. D. (1779).

Rare; taken by me in the gardens at "Happy Valley," February 2nd, 1892.

79. Catopsilia crocale.

Papilio crocale, Cram., Pap. Exot., iii., t. 229, figg. D. E. (1782).

Fairly common, but not abundant, in open wooded places and gardens. Observed from December to May.

80. Terias hecabe.

Papilio hecabe, Linn., Syst. Nat., i., 2, p. 763 (1767).

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a List of the Butterflies of Hong-Kong.

Very common everywhere along sunny roadsides, and probably on the wing all the year round. Winter specimens are small, and have the black borders of the wings much reduced in width; but I have never seen any approaching the next species in character, which I found to be distinguishable on the wing at a glance.

81. Terias mandarina.

Terias mandarina, De l'Orza, Lep. Jap., p. 18 (1869).

Much scarcer than the preceding, and usually occurring by single specimens, in "Happy Valley" and elsewhere, in February, March, and April. I found it much more common in the Chusan Islands than at Hong-Kong. Very constant in its markings.

82. Terias læta

Terias læta, Boisdv., Sp. Gén. Lép., i., p. 674 (1836).

Not very common; frequents open dry places where Mimosa pudica grows freely, and may be taken from February to May.

83. Terias brigitta.

Papilio brigitta, Cram., Pap. Exot., iv., t. 331, figg. B. C. (1782).

Var. b. Pap. libythea, Fabr., Ent. Syst., Suppl., p. 427 (1798).

A small Terias, which I took very rarely in the "Happy Valley," I find placed under the name of T. *libythea*, Fabr., in the National Collection.

84. Pieris (Ganoris) canidia.

Papilio canidia, Sparrm., Amœn. Acad., vii., p. 504, note m. (1768).

Pap. gliciria, Cram., Pap. Exot., ii., t. 171, figg. E. F. (1779).

Pieris claripennis, Butler, Ann. and Mag. Nat. Hist., ser. 4, xix., p. 96 (forma æst.)

P. sordida, Butler, loc. cit. (forma hyem.).

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This is one of the commonest butterflies at Hong-Kong, and may be found everywhere in open places, flying over the blossoming rapeseed in December and January, and frequenting the mignonette in the "Happy Valley" gardens; I have found the larva and pupa on the latter plant. The winter specimens are much darker and more suffused with black scales (especially beneath) than those taken from April onwards, and are the form described by Mr. Butler as *Pieris sordida*; the summer broods being the *P. claripennis* of the same author.

85. Pieris (Huphina) nerissa.

Papilio nerissa, Fabr., Syst. Ent., p. 471, n. 123 (1775).

Pap. amasene, Cram., Pap. Exot., i., t. 44, fig. A. (1776). *Pap. coronis, loc. cit.*, A. (1776).

Not very common, but taken sporadically from December to May, and is very partial to the *Lantana* blossom. Unlike the preceding, the winter brood is the pale one, the summer specimens being very dark and richly marked.

86. Pieris (Huphina) pallida.

Huphina pallida, Swinhoe, P.Z.S., 1885, p. 137.

Scarce; occasionally taken in the "Happy Valley" gardens from February to May. These Hong-Kong insects agree well with specimens of *Huphina pallida* in the National Collection, recorded from Poona and Bombay.

87. Pieris (Huphina) aspasia.

Papilio aspasia, Stoll, Suppl. Cram., t. 33, figg. 3, 3 C. (1790).

Var. b. Pontia olga, Esch., Kotzeb. Reise, iii., p. 214, t. 9, fig. 21, a, b.

The only evidence I have of the occurrence of this pretty insect in Hong-Kong, is a specimen in the National Collection labelled as coming from thence. I found it not uncommonly in the Philippine Islands, at Samboangan and Manila, in December, 1891.

88. Tachyris (Appias) albina.

Pieris albina, Boisdv., Sp. Gén. Lép., i., p. 480, n. 62 (1836).

This butterfly was first observed by me on the afternoon of April 28th, 1893, under circumstances which appeared to indicate a large immigration of the species into Hong-Kong; numerous specimens, nearly all \mathcal{J} 's in worn condition, were seen flying about the *Ficus* trees in the city, just before a very heavy thunderstorm. A very few \mathcal{F} 's were afterwards taken.

89. Ixias pyrene.

 Papilio pyrene, Linn., Mus. Ulr., p. 241 (1764).
 Pap. sesia, Fabr., Gen. Ins., p. 257 (1777); Don., Ins. China, t. 31, fig. 2 (1798).

Tolerably common, especially in "Happy Valley," the pale φ being not at all rare. Fresh examples have been met with from December to May, those taken in the winter months being small, with the black border of the hindwings almost obsolete; but it is perhaps most plentiful in March and April. The Hong-Kong specimens agree well with the form described by Fabricius and figured by Donovan as *Papilio sesia*, as well as with specimens standing under this name in the Godman-Salvin collection. The flight of this butterfly, especially in the \mathcal{J} , is rapid and erratic, and it is by no means easy to catch.

90. Hebomoia glaucippe.

Papilio glaucippe, Linn., Mus. Ulr., p. 240 (1764); Syst. Nat., i., 2, p. 762, n. 89 (1767).

Worn specimens of this fine butterfly were observed by me in December, 1891, and January, 1892, and freshly emerged examples were taken on March 5th. Its flight is exceedingly strong and wild, but it may sometimes be caught while feeding at the flowers of *Hibiscus rosa-sinensis*, to which it is very partial. On hot sunny days it is very fond of settling, with closed wings, on the borders of streams, for the purpose of drinking the moisture, and is then almost completely invisible, as the colour of the underside, which is minutely irrorated with greyish-brown on a very pale fawn-coloured ground, harmonizes exactly with that of the wet sand on which the insect rests, and furnishes one of the most beautiful examples of protective coloration with which I am acquainted. Large and darkly coloured specimens occur in the middle of summer.

91. Papilio aristolochiæ.

Papilio aristolochiæ, Cram., Pap. Exot., ii., t. 128, figg. A. B. (1779).

There are specimens of this butterfly in the small local collection at the City Hall Museum, and in one or two others in Hong-Kong, but I have not taken it myself. The species occurs commonly in the Chusan Islands.

92. Papilio paris.

Papilio paris, Linn., Mus. Ulr., p. 184 (1764).

This and the following are among the most conspicuous and beautiful butterflies of Hong-Kong, and *P. paris* is to be found commonly from the beginning of February onwards; *Hibiscus rosa-sinensis* and *Lantana camera* being its favourite flowers. Freshly emerged specimens were seen on February 5th, 1892.

93. Papilo bianor.

Papilio bianor, Cram., Pap. Exot., ii., t. 103, fig. C. (1779).

Perhaps somewhat more common than the preceding, and similar in its haunts and habits, but rather slower and heavier in flight. Females of both species are very rare. The first fresh specimens were noticed on March 5th, 1892, and another brood, considerably larger in average size, appears in May. I took *P. bianor* in the Chusan Islands in July and August, 1892, but did not meet with *P. paris* there.

94. Papilio agenor.

Papilio agenor, Linn., Mus. Ulr., p. 194 (1764).

Pap. achates, Cram., Pap. Exot. ii., t. 182, figg. A. B. (1779).

Pap. phœnix, Distant, Rhop. Malay., p. 340, t. xxvii, b, fig. 7, 9.

Occurs not rarely in "Happy Valley" and other wooded spots; tailed examples of the φ are rare, at all events during the season over which my stay extended, and one form of this sex approaches very closely to the insect described and figured by Distant as *P. pheenix*. The \mathcal{J} is much more plentiful. First seen March 5th, 1892, more common in May. The butterfly is partial to shady situations, and has a strong sailing flight.

95. Papilio protenor.

Papilio protenor, Cram., Pap. Exot., i., t. 49, figg. A. B. (1779).

Not very common; frequents the flowers of *Rhodo*dendron indicum and Lantana camera; at the latter shrub I took two or three beautiful examples of the φ , which appears to be much scarcer than the other sex, on my last day's collecting at Hong-Kong, May 19th, 1893. First observed on March 5th, 1892. Its flight is rather slow and heavy.

96. Papilio helenus.

Papilio helenus, Linn., Mus. Ulr., p. 185 (1764).

A very common butterfly, of which stragglers are met with in December and January, and fresh examples were observed on February 11th, 1892. The larva is found not rarely, on the leaves of various *Aurantiaceæ*, and closely resembles that of the following species. The flight of this butterfly is strong, undulating, and very erratic, and it is by no means easy to secure in good condition.

97. Papilio polytes.

Papilio polytes, Linn., Mus. Ulr., p. 186 (1764). Pap. pammon, Linn., loc. cit., p. 189.

This is the commonest species of *Papilio* at Hong-Kong, its time of appearance on the wing coinciding

with that of the preceding. The form of the φ , which resembles the \mathcal{J} in markings, is as common here as the one largely marked with white and red on the hindwings, originally described by Linnæus as *P. polytes*. The larva is common on orange, lime, pumilo (*Citrus decumana*), and other trees of the orange tribe. A fine large form of this species occurs commonly at Shanghai and in the Chusan Islands.

98. Papilio erithonius.

Papilio erithonius, Cram., Pap. Exot., iii., t. 232, figg. A. B. (1782).

Moderately common in "Happy Valley" and elsewhere, and very partial to the flowers of *Lantana camera*. The ground colour of most of the Hong-Kong specimens, especially of the underside, is much fuller and deeper than in those I have seen from India and elsewhere.

99. Papilio clytia.

Papilio clytia, Linn., Mus. Ulr., p. 296 (1764).

Pap. dissimilis, Linn., loc. cit., p. 301.

Var. Pap. panope, Linn., Syst. Nat., i., 2, p. 782, n. 196 (1767).

Another fairly common species, especially in "Happy Valley" and at Kowloon, appearing on the wing at the beginning of March; and the gaily coloured and conspicuous larvæ are often met with in May, on a species of Morinda which grows commonly along the roadsides. The pupa reminds one strongly of that of the genus Thais. P. panope, Linn., which is not very common (though perhaps often passed over as an Euplea, while P. clytia has on the wing a considerable, but less striking resemblance to one of the green Danaids), has been bred from larvæ collected with those of P. clytia, and quite undistinguishable from them; and I have seen specimens intermediate between the two forms. The specific identity of P. clytia and panope thus appears to me to be placed beyond question.

100. Papilio antiphates.

Papilio antiphates, Cram., Pap. Exot., i., t. 72 (1779).

Not very common, occurring chiefly in the "Happy Valley," and first observed, March 3rd, 1892. An insect of powerful and graceful flight, and which soars higher than is the habit of most of its genus.

101. Papilio sarpedon.

Papilio sarpedon, Linn., Mus. Ulr., p. 196 (1764).

This common, but very beautiful, butterfly is most partial to the flowers of *Lantana camera*, but from its swift flight and extreme wariness is difficult to capture. Fresh specimens were first seen on February 11th, these being very small; some of those taken in May are much larger, and approach the Japanese form *P. teredon*, Feld. *P. sarpedon* is perhaps most plentiful in April. The form in which the band of blue-green spots on the hindwings is obsolete (first noticed by Mr. J. H. Leech from Kiukiang in Central China, Trans. Ent. Soc. 1889, p. 115, pl. vii., fig. 2), occurs here very rarely.

102. Papilio eurypilus.

Papilio eurypilus, Linn., Syst. Nat., ed. x., p. 464 (1758); Clerck, Icones, ii., t. xxviii., fig. 2 (1764).
 Pap. telephus, Feld., Reise Nov., Lep., i., p. 64 (1865), Dist., Rhop. Malay., p. 351, fig. 109.

Tolerably common, especially in April and May, the first example having been taken on March 12th, 1892. It is not as swift on the wing as *P. sarpedon* and *agamemnon*, and, like others of the genus, it is very fond of settling on damp sand in the heat of the day, and sucking the moisture; it may then be very easily taken.

103. Papilio agamemnon.

Papilio agamemnon, Linn., Mus. Ulr., p. 202 (1764).

Also common, but even more wary and rapid of flight than *P. sarpedon*. It is most frequently seen at the blossoms of the *Lantana*, and appears rather late in the season, the first specimen having been observed on March 22nd, 1892.

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104. Papilio xuthus.

Papilio xuthus, Linn., Syst. Nat., i., 2, p. 751, n. 34 (1767).

This conspicuous yellow-and-black "swallow-tail," so characteristic of the Chusan Islands and Japan, is here at the southern limit of its distribution, having been once or twice observed at "Victoria Peak," but I have not myself met with it. I may here mention that on May 19th, 1893, I saw all the Hong-Kong species of *Papilio*, with the exception of *P. aristolochiæ* and *xuthus*, and took most of them at a small clump of *Lantana camera* at the head of the "Happy Valley," in little more than an hour in the forenoon.

105. Leptocircus curius.

Papilio curius, Fabr., Mant. Ins., ii., p. 9, n. 71 (1787).

The headquarters of this lovely little butterfly in Hong-Kong is the "Happy Valley," where I first met with it on February 13th, 1892, and on March 12th I took a very fine series; in 1893 it was scarce, and did not appear before April 2nd. It is hardly possible to imagine a more dainty and elegant little creature, as it feeds at the white blossoms of its favourite shrub, Buddlæa asiatica, probing flower after flower of the racemes with its proboscis, with the long tails of the hindwings elevated and quivering, and vibrating its wings all the time without actually settling, like its larger relatives the Papilio's. When alarmed, it "booms" off rapidly, with a flight resembling that of the larger Hesperiidæ. I have never seen it hovering over running water in the manner described by Mr. H. O. Forbes (Nat. Wanderings in the Eastern Archip., p. 139), although there is a fine stream in the gardens at "Happy Valley." It is by no means easy to obtain Leptocircus in good condition, the long delicate tails being very liable to damage. My specimens are in all respects identical with the Fabrician type of L. curius preserved in the Banksian collection at the Natural History Museum.

106. Ismene ataphus.

Ismene ataphus, Watson, P.Z.S., 1893, p. 126. I. ædipodea, Moore (nec Swains.), Lep. Ceylon, i., p. 158, pl. 64, figg. 2, 2a, 2b (1881).

Not common; this fine "skipper" is usually taken flying among *Lantana camera* towards evening. First observed January 28th, 1892.

107. Hasora vitta.

Hesperia vitta, Butl., Trans. Ent. Soc., 1870, p. 498.

This is a scarce species, of which I have taken only one or two specimens at flowers in the "Happy Valley" gardens, in April, 1893.

108. Matapa aria.

Ismene aria, Moore, P.Z.S., 1865, p. 784.

Not very common; chiefly taken at flowers of Lantana, March to May.

109. Notocrypta alysos.

Plesioneura alysos, Moore, P.Z.S., 1865, p. 789, ? = P. (Thymele) feisthamelii, Boisdv., Voy. Astrol., Lep., t. 2, fig. 7 (1832).

Rare; taken by me in the gardens at "Happy Valley," March 26th, 1892.

110. Baoris oceia.

Pamphila oceia, Hew., Descr. Hesp., p. 31, No. 22 (1868).

Not common; at flowers in the "Happy Valley" gardens, first taken by me on March 26th, 1892. The tuft of long silky hairs on the upper side of the hind-wing of the \mathfrak{d} is very remarkable.

111. Baoris narooa.

Hesperia narooa, Moore, P.Z.S., 1878, p. 687; Wood-Mason & De Nic., J.A.S. Bengal, l., 2, p. 260, n. 125 (1881).

Not uncommon in "Happy Valley" and elsewhere, at flowers, March to May.

112. Baoris assamensis.

Parnara assamensis, Wood-Mason & De Nic., J.A.S. Bengal, li., 2, p. 65 (1882).

This large and fine skipper has been taken by me in the "Happy Valley" gardens, on one or two occasions in March, 1893.

113. Chapra mathias.

Hesperia mathias, Fabr., Ent. Syst., Suppl., p. 433 (1798).

Very common; frequents flowers in dry open places from December to May, and is probably on the wing all the year.

114. Parnara guttatus.

Eudamus guttatus, Brem. & Grey, Schmett. N. China's, p. 10 (1853).

Less common than the preceding, and nearly all the specimens which were taken occurred in the "Happy Valley" gardens in March and April. I found it much more plentiful in the Chusan Islands in the summer of 1892.

115. Suastus gremius.

Hesperia gremius, Butl., Cat. Fabr. Lep. p. 271, t. 3, 7 9.

Hesp. divodasa, Moore, P.Z.S., 1865, p. 791.

Not uncommon at flowers in "Happy Valley" gardens in April and May.

116. Telicota bambusæ.

Pamphila bambusæ, Moore, P.Z.S., 1878, p. 691, t. xiv., 11 \$, 12 \$.

Rather scarce: found at *Lantana* flowers at Kowloon in April, 1893, when Mr. Skertchly and I obtained most of the few specimens which were taken.

117. Telicota mæsoides.

Pamphila mæsoides, Butl., Trans. Linn. Soc. (2), Zool. i., p. 554 (1877).

Much more common than the preceding, occurring in open sunny places during the whole of my stay at Hong-Kong.

118. Halpe moorei.

Halpe moorei, Watson, P.Z.S., 1893, p. 109.

Rather scarce, and chiefly met with at *Lantana* flowers in "Happy Valley" in April and May.

119. Tagiades atticus.

Hesperia atticus, Fabr., Ent. Syst., iii., 1, p. 339 (1793).

Not uncommon in "Happy Valley" at the end of April and in May. A very pretty and conspicuous species, flying swiftly along shady pathways, and settling on flowers and foliage, with expanded wings.

120. Antigonus sura.

Achylodes sura, Moore, P.Z.S., 1865, p. 784. Abaratha sura, Dist., Rhop. Malay., p. 390, t. xxxiv., fig. 16 3.

Fairly common in April and May in the gardens at "Happy Valley." It flies with great rapidity, but is easily taken as it settles with fully-expanded wings on the topmost leaves and twigs of low bushes.

121. Erionota thrax.

Hesperia thrax, Linn., Syst. Nat., i., 2, p. 794 (1767).

I have not taken this fine and conspicuous species myself, though on one or two occasions I have seen it flying at dusk. Dr. W. W. Beveridge bred a fine series in 1892 from larvæ found in rolled-up leaves of banana.

122. Hyarotis adrastus.

Hesperia adrastus, Cram., Pap. Exot., iv., t. 319, figg. F. G. (1780).

Moderately common at flowers in "Happy Valley" gardens, April.

123. Udaspes folus.

Papilio folus, Cram., Pap. Exot., i., t. 74, fig. 7 (1779).

Although I have not myself met with this butterfly, it appears to be not uncommon at Kowloon, as well as at Hong-Kong. I have received specimens from Mr. Skertchly, taken at the former locality.

124. Asticopterus olivascens.

Asticopterus olivascens, Moore, P.Z.S., 1878, p. 692; Wood-Mason & De Nic., J.A.S. Bengal, lv., 2, p. 381, t. 18, figg. 2, 2a (1887).

Cyclopides chinensis, Leech, Entom. xxiii., p. 48 (1890).

Steropes nubilus, Mab., Ann. Soc. Ent. Belg. xxxv., p. lxiv. (1891).

Very common in April and May; usually found flying in grassy places along the borders of streams, but also taken on flowers in gardens.

125. Asticopterus (Iambryx) salsala.

Nisoniades salsala, Moore, P.Z.S., 1865, p. 786.

I found this species very locally in a grassy place in "Happy Valley," at the end of April, 1893. In concluding this paper it remains for me to thankfully acknowledge the kind assistance rendered by my friend and companion in many a pleasant collecting ramble, Mr. S. B. J. Skertchly, F.G.S., in placing his local collection at my disposal, and in helping to draw up the first list of Hong-Kong butterflies, published in his little work "Our Island." A series of insects of all orders taken by me at Hong-Kong has been deposited in the Natural History Museum, and I have to thank Messrs. Butler, Kirby, and Heron for indispensable assistance in identifying the butterflies which form the subject of these notes.

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